US Army Corps of Engineers®
Alaska District

DRAFT Feasibility Report and Environmental Assessment

Homer Navigation Improvements
Homer, Alaska
Appendix G: Draft Clean Water Act Section 404(b)(1) Evaluation

May 2026

DRAFT CLEAN WATER ACT SECTION 404(b)(1) EVALUATION
U.S. ARMY CORPS OF ENGINEERS

PROJECT: Homer Navigation Improvements

PROJECT MANAGER: Curtis Lee, 907-753-2539
FORM COMPLETED BY: Matthew Ferguson, 907-753-2711
Kayla Campbell, 907-753-2757

PROJECT DESCRIPTION:

USACE proposes to construct navigation improvements adjacent to the existing small boat harbor on the Homer Spit in Homer, Alaska. The study location and study area are shown in Figure 1 and Figure 2, respectively. The navigation improvements are needed to address inefficiencies stemming from overcrowding and limited ability for larger vessels to access the harbor. Overcrowding contributes to vessel delays and damages in a large region of Alaska.

USACE is currently engaged in a feasibility study to develop and evaluate alternatives to address the navigation inefficiencies in Homer. The initial array of alternatives was filtered for study-specific constraints seeking to minimize impacts to fishing, the local economy, sedimentation, and natural resources. The final array of alternatives was confined to the area northeast and adjacent to the uplands associated with the existing harbor. Alternatives in this area are proximal to the existing harbor infrastructure, naturally protected by the spit, and close to naturally deep water. By nature of intentional design, the alternatives evaluated under the USACE feasibility study were minimized to the maximum extent practicable to effect each alternative.

Alternative 2: Transient and Waitlisted Vessels Harbor has been selected as USACE's Tentatively Selected Plan (TSP). This TSP will be constructed at the same site and in a similar configuration to the other alternatives considered, featuring a stub rubble-mound breakwater to the west, a long main rubble-mound breakwater to the east, and an entrance channel in the northern corner. Key features of the TSP include:

- An entrance channel dredged to -26 feet mean lower low water (MLLW).
- A fairway and mooring basin dredged from -24 to -15 feet MLLW.

The inclusion gradient of the fairway and mooring basin from -24 to -15 feet MLLW reduces the total volume of dredged material to the maximum extent practicable to effect the TSP, which is built to accommodate small waitlisted vessels and larger transient vessels. Further details are summarized in Table 5.

The discharges regulated under the CWA associated with the TSP will include the placement of rock for the construction of the rubble-mound breakwaters, and the disposal of dredged material in deep water approximately one mile from the project site. All discharges are currently assumed to consist of clean material based on the preliminary chemical analysis of dredged material conducted in conjugation with the study's October 2025 geotechnical investigation. USACE will conduct a more robust chemical analysis in the Preconstruction Engineering Design (PED) Phase and coordinate with EPA and ADEC to validate this 404(b)(1) evaluation and determinations.

1. Review of Compliance (Section 230.10(a)-(d)).

    a. The discharge represents the least environmentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its basic purpose.

    ☒YES ☐NO

The construction of the Homer Harbor is not a water dependent activity, but it will necessarily impact special aquatic sites, including submerged aquatic vegetation (SAV) within the dredging and rubble-mound breakwater construction footprints. Under the CWA, for activities that are not water dependent, practicable alternatives that do not involve special aquatic sites are presumed to be available and are presumed to have less adverse impacts on the aquatic ecosystem. Due to the existing location and aquatic environment of Homer Harbor and the practicability constraints of locations to expand harbor access, practicable alternatives not involving special aquatic sites are not available. The selected location for the TSP provides essential access to existing harbor infrastructure and offers natural protection from powerful waves originating in Lower Cook Inlet and the Gulf of Alaska. The TSP is situated in an area of high human activity within Kachemak Bay. The current design represents the least environmentally damaging practicable alternative and will be further refined in the PED Phase to minimize environmental impacts to the maximum extent practicable. Furthermore, the TSP is the most practicable and least environmentally damaging option when considering cost, logistics, and existing technology. The TSP is a cost-effective solution that is affordable and meets the project's purpose.

    b. The activity does not appear to: violate applicable state water quality standards or effluent standards prohibited under Section 307 of the CWA; 2) jeopardize the existence of Federally listed threatened and endangered species or their critical habitat; and 3) violate requirements of any Federally designated marine sanctuary.

    ☒YES ☐NO

In October 2025, USACE conducted a geotechnical investigation and collected sediment samples for preliminary chemical analysis at the project site. The results of the geotechnical investigations and preliminary chemical analysis supported that the material at the project site is suitable for in-water disposal and similar in sediment composition with the current designated Deep Water Disposal Site (DWDS).

USACE sent a formal notification to the Alaska Department of Environmental Conservation (ADEC) regarding the intent for USACE to acquire a CWA Section 401 Water Quality Certification (WQC). USACE will obtain a WQC for the TSP in the Feasibility Phase. The WQC received from ADEC may be conditional on further testing should it be determined additional sediment analysis is required to fully characterize the dredged material and assess its suitability for the selected dredged material management strategy.

USACE anticipates a Conditional WQC will be issued by ADEC, and plans to conduct a more robust chemical characterization in the PED Phase. The Sampling and Analysis Plan (SAP) that will be developed will be informed by the preliminary chemical characterization from the Feasibility Phase and guided by the Draft Alaska Dredged Material Evaluation Framework (ADMEF). The SAP will be submitted to the ADEC Water Division and Environmental Protection Agency (EPA) for their review and concurrence that the plan is sufficient for informing a final suitability determination for the proposed dredged material management strategy. The project is not expected to adversely affect threated or endangered species, and the area does not include a marine sanctuary.

c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values.

☒YES ☐NO

SAV, specifically eelgrass (*Zostera marina*), is present directly within and adjacent to the construction footprint (i.e., breakwaters and dredged prism) of the TSP. However, the eelgrass within the construction footprint is relatively low quality as indicated by the observed density and historical levels of anthropogenic activity at the site. The dredged material disposal could directly impact benthic animals and habitat, but the impacts are not expected to be significant because the disposal site is not a particularly high-value or rare habitat in Kachemak Bay. There is no SAV in the DWDS, and the DWDS is expected to recover in a moderate timeframe through natural dispersion and deposition of sediments.

d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem

☒YES ☐NO

Extensive ecological surveys conducted by USACE in the project footprint and DWDS determined that the impacted habitat is not considered rare or uniquely valuable within the context of the entirety of the Kachemak Bay. The DWDS was strategically selected to avoid the Kachemak Bay Critical Habitat Area. Preliminary chemical analysis of the dredged material was completed in the Feasibility Phase and an additional chemical analysis will be conducted in the PED Phase prior to disposal to ensure full compliance with the aquatic discharge guidelines of the Draft ADMEF.

2. Technical Evaluation Factors (Subparts C-F)

    a. Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C) (Sec. 230.20-230.25).

Table 1. Potential impacts on physical and chemical characteristics of the aquatic ecosystem

Component	Significant	Insignificant	N/A
Substrate		X	
Suspended particulates/turbidity		X	
Water			X
Current patterns and water circulation		X	
Normal water fluctuations			X
Salinity gradients			X

Dredging operations will primarily occur within the same sediment layer, composed of fines and characterized as very soft to soft silts and clays with sand. As a result, the dredged material is expected to predominantly have the same characteristics as the newly exposed seabed. The dredged material will be discharged at the designated DWDS. The rubble-mound breakwater construction will introduce a new rocky substrate into an area naturally dominated by fine sediments. While construction will temporarily suspend sediment, these effects will be localized and short-lived. The use of silt curtains during dredging will further minimize turbidity, protecting adjacent sensitive areas from adverse impacts. To ensure compliance with water quality standards, dredged material will undergo an additional chemical analysis during the PED Phase. Modeling results indicate that any impacts to water circulation and sedimentation will be highly localized, insignificant, and will stabilize within one-year post-construction. The rubble-mound breakwater design was informed by this modeling to minimize its effects on the surrounding environment.

    b. Potential Impacts on Biological Characteristics of the Aquatic Ecosystem (Subpart D)(Sec. 230.30-230.32).

Table 2. Potential impacts on biological characteristics of the aquatic ecosystem

Component	Significant	Insignificant	N/A
Threatened and endangered species		X	
Fish, crustaceans, mollusks, and other aquatic organisms in the food web		X	
Other wildlife		X	

The project area is already subject to high levels of marine and upland anthropogenic activity due to the presence of the existing harbor, Deep Water Dock, and vessel haulout. Construction would temporarily alter the activities in the area and introduce new temporary stressors like barge activity, dredging, rock placement, and pile driving. USACE would mitigate the effects of the action on biological characteristics of the aquatic ecosystem by monitoring an exclusion area during construction. Other mitigation measures such as pre-construction ecological surveys, silt curtains, bubble curtains, and timing windows may also be implemented to reduce impacts on biological resources.

c. Potential Impacts on Special Aquatic Sites (Subpart E)(Sec. 230.40-230.45).

Table 3. Potential impacts on special aquatic sites

Component	Significant	Insignificant	N/A
Sanctuaries and refuges			X
Wetlands			X
Mudflats		X	
Vegetated shallows		X	
Coral reefs			X
Riffle and pool complexes			X

The discharge of fill for rubble-mound breakwater and dredging of the new harbor basin, fairway, and moorage areas will result in direct loss of special aquatic sites, but the disposal of dredged material in deep water off the end of the Homer Spit would not. Although the area is mapped by the USFWS National Wetland Inventory as “Marine and Estuarine Wetland”, the area is more accurately characterized as deepwater habitat pursuant to the definition of deepwater habitat in Cowardin 1979 and the 1987 US Army Corps of Engineers Wetland Delineation Manual. The area also does not satisfy the definition of wetlands in Executive Order 11990, Protection of Wetlands, because while it is inundated by surface water, it does not support vegetative or aquatic life that requires saturated soil conditions for growth and reproduction.

Part of the new harbor footprint could impact intertidal mudflats and vegetated shallows, specifically eelgrass beds, which are categorized as a special aquatic sites under the CWA. The relict mudflats in the immediate project area are very narrow due to the construction of the upland component of the existing harbor. Extensive intertidal mudflats are present in Mud Bay, which is on the northwestern side of the Homer Spit. Mud Bay is not within the direct footprint of the TSP, which is composed of vegetated shallows i.e., patches of low-density eelgrass). SAV Habitat Suitability Index modeling has indicated the eelgrass in the project footprint provides a low level of function relative to the other areas of higher density eelgrass in other parts of Kachemak Bay, which is consistent with on the ground observations from USACE in 2024 and 2025.

d. Potential Effects on Human Use Characteristics (Subpart F)(Sec 230.50-230.45)

Table 4. Potential effects on human use characteristics

Component	Significant	Insignificant	N/A
Municipal and private water supplies			X
Recreational and commercial fisheries	X		
Water-related recreation		X	
Aesthetics		X	
Parks, national and historic monuments, national seashores, wilderness areas, research sites, and similar preserves			X

The TSP will have a significant beneficial impact on both commercial and recreational harbor users. By accommodating the waitlist and relocating transient vessels, the project will relieve chronic congestion in the existing harbor, thereby improving access and safety for all boaters. Aesthetically, while the expansion will be visible, it is consistent with the established maritime character of the Homer Spit and will not fundamentally alter the area's visual landscape.

3. Evaluation and Testing (Subpart G) (Sec. 230.60-230.61)

    a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material:

Physical characteristics	☒YES	☐NO
Hydrogeography in relation to known or anticipated sources of contamination	☒YES	☐NO
Results from previous testing of the material or similar material in the vicinity of the project	☒YES	☐NO
Known, significant sources of persistent pesticides from land runoff or percolation	☒YES	☐NO
Spill records for petroleum products or designated hazardous substances (Section 311 of CWA)	☒YES	☐NO
Public records of significant introduction of contaminants from industries, municipalities, or other sources	☒YES	☐NO
Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities	☒YES	☐NO
Other sources (specify)	☐YES	☒NO

Fill for the rubble-mound breakwater construction would not require testing because the fill material would be derived from a clean source and would be predominantly coarse material. The dredged material would require testing. A physical analysis and preliminary chemical analysis of the dredged material has been conducted in the Feasibility Phase, with a complete characterization planned for the PED Phase.

Surface and subsurface samples have been collected from the proposed dredged material and inferences have been made about the subordinate materials based on the geophysical investigation completed for the *Homer Navigation Improvements Study*. The geophysical investigation informed the physical characteristics of the material. The existing soils in the project area consist of a consistent profile, with a surface layer of very soft to soft silts and clays with sand (8 to 27 feet thick) underlain by progressively denser layers of sandy silt and silty sand.

Based on the chemical analysis performed for the project's SAP, these sediments are considered clean and suitable for in-water use. The dredged material is predominantly composed of fines (a mixture of silt, clay, and sand). The composition of the subsurface sediment collected for chemical analysis had the most clay content, with surface samples leaning to be siltier. While the surface samples would be the component most likely to be exposed to potential sources of anthropogenic contamination and as a fine particle type contain contaminants, the subsurface clay would be more likely to carry contaminants based on grain size. The sand with the sediment matrices of the surface and subsurface samples is less likely to carry anthropogenic contaminants but has potential to carry metals in concentrations exceeding applicable Draft ADMEF screening levels.

The dredge prism is proximal to a marine repair facility located just north of the

existing harbor where salvage and repairs are conducted on large vessels. Large vessels are hauled out of the water on high tides and supported on inflatable bags or blocks while repairs are conducted. Vessels are also broken down for scrap at this facility. Potential contamination from metals and petroleum products may be associated with this facility and the circulation patterns in the area could allow contaminants to be transported to the harbor footprint to assess the potential for contamination from these activities and potential migration into the construction footprint of the TSP, USACE collected and tested surface sediment near the facility.

The existing harbor contains two fuel docks near the entrance channel, which represent a source of potential petroleum contamination. Homer Harbor has 876 reserve slips and approximately 6,000 feet of transient moorage space, which represent potential sources of contaminants associated with the vessels from leaks and spills. There are also some wooden dock pilings in the area that have been identified as releasing creosote and other wood preservatives into the water. This was identified during regular chemical testing of maintenance dredged material from the United States Coast Guard (USCG) berth and Homer Harbor Entrance Channel. The Homer Harbor is dredged under the USACE Operations and Maintenance Program and an authorized Federal navigation project. The sediments have historically been found to be suitable for unconfined aquatic discharge, but April 2025 testing of the USCG berth just outside the Homer Harbor Entrance Channel encountered wood preservative constituents exceeding the allowable concentration for aquatic discharge. The material did pass the screening levels for upland placement and upon further testing of the de-watered stockpile, the material was determined to be suitable for unconfined aquatic discharge after two months of exposure at the dewatering/stockpile site.

Pesticides are not considered to be a significant concern in this area. There is no agriculture, a history of pesticide use, or a history of pesticide exceedance in the chemical testing record for the existing harbor or USCG berth.

There are five known contaminated sites in the ADEC Contaminated Sites database in the vicinity of the TSP. All five sites are in a “Cleanup Complete” status. The Hazard ID, Site Name, and Primary Constituent are shown in Table 6.

b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants, or that levels of contaminants are substantively similar at extraction and disposal sites and not likely to require constraints. The material meets the testing exclusion criteria.

☐YES ☒NO

4. Disposal Site Delineation (Section 230.11(f))

    a. The following factors, as appropriate, have been considered in evaluating the disposal site:

Depth of water at the disposal site	☒YES	☐NO
Current velocity, direction, and variability at the disposal site	☒YES	☐NO
Degree of turbulence	☒YES	☐NO
Water column stratification	☒YES	☐NO
Discharge vessel speed and direction	☐YES	☒NO
Rate of discharge	☐YES	☒NO
Dredged material characteristics (constituents, amount, and type)	☒YES	☐NO
Number of discharges per unit of time	☐YES	☒NO
Other factors affecting rates and patterns of mixing (specify)	☐YES	☒NO

The proposed DWDS is currently designed as a 28-acre rectangle approximately 600 feet wide and 2,000 feet long. Disposal mound modeling has not been conducted, but if the dredged material was distributed evenly across the entire polygon, it would increase the bottom elevation by about 28 feet. This change in elevation isn't sufficient to cause impacts to navigation or have major consequences on the amount of sunlight that would reach the seafloor, but it would significantly alter the bottom topography and physical characteristics of the substrate.

Increasing the size of the disposal site would distribute substrate alterations over a larger area, but reduce the magnitude of the elevation changes. The water over the disposal site is at least 160 feet deep, near the maximum depth of photosynthesis and well beyond the depth of concern for navigation impacts.

The current over the disposal site is generally bidirectional and driven by tide change. NOAA current predictions for the Homer Spit (COI1201) at a depth of 198 feet are generally less than 1 knot and slightly above 1 knot at the surface. Turbulence near the disposal site can be relatively high due to its proximity to the "pinch point" across Kachemak Bay created by the Homer Spit.

Water column stratification over the disposal site has not been measured, but is anticipated to be well-mixed due to the turbulence caused by the tidal exchange and hydraulic constraint. Information about vessel speed and direction, rate of discharge, dredged material characteristics, and number of discharges per unit of time are unavailable at the time of checklist preparation.

The geotechnical investigation collected data regarding the dredged material particle size distribution, which can be used to estimate the turbidity effects and required surface discharge zone setback from the boundary of the disposal site to ensure the effects of the discharge would be fully contained within the disposal site. This analysis has not taken place but modeling for sedimentation transport is ongoing that should fill this analysis gap and inform the final dimensions and shape of the DWDS to avoid or minimize to the extent practicable, turbidity impacts to inform whether the

potential effects would extend into the Kachemak Bay Critical Habitat Area to the degree that USACE needs to coordinate with ADF&G for the new work dredged material disposal at the DWDS.

b. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or size of mixing zone are acceptable:

☐YES ☒NO

5. Actions to Minimize Adverse Effects (Subpart H) (Sec. 230.70-230.77)

    a. All appropriate and practicable steps have been taken through application of recommendation of Section 230.70-230.77 to ensure minimal adverse effects of the proposed discharge:

    ☒YES ☐NO

        i. Selecting a disposal site at which the substrate is composed of material similar to that being discharged
        ii. Screening fine-grained material from new rubble-mound breakwater rock
        iii. Restricting vessel operation in shallow water
        iv. Prohibiting vessel grounding outside the project area
        v. Deploying silt curtains for new work dredging operations
        vi. Placing filter material over the barge scuppers to return clear water
        vii. Monitoring the disposal location after construction to document site recovery and assess cumulative effects

6. Factual Determinations (Section 230.11).

A review of appropriate information as identified in items 2 - 5 above indicates that there is minimal potential for short- or long-term environmental effects of the proposed discharge as related to:

Physical substrate (review Sections 2a, 3, 4, and 5 above)	☒YES	☐NO
Water circulation, fluctuation, and salinity (review Sections 2a, 3, 4, and 5 above)	☒YES	☐NO
Suspended particulates/turbidity (review Sections 2a, 3, 4, and 5 above)	☐YES	☒NO
Contaminant availability (review Sections 2a, 3, and 4 above)	☐YES	☒NO
Aquatic ecosystem structure, function, and organisms (review Sections 2b and c, 3, and 5 above)	☒YES	☐NO
Proposed disposal site (review Sections 2, 4, and 5 above)	☐YES	☒NO
Cumulative effects on the aquatic ecosystem	☒YES	☐NO
Secondary effects on the aquatic ecosystem	☒YES	☐NO

While preliminary chemical testing indicates that the dredged material is suitable for in-water placement, this analysis is insufficient for a final determination. A comprehensive characterization will be conducted during the PED Phase to fully assess the potential for short- and long-term environmental effects, including contaminant availability and turbidity. This next phase will include modeling to predict the extent of the turbidity plume at the Deep-Water Disposal Site (DWDS). The results of this modeling are interdependent with the final design of the DWDS, ensuring all impacts are minimized.

7. Findings of Compliance or Non-compliance

The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines:

☒YES ☐NO

USACE commits to finalizing the DWDS design and completing all necessary chemical analyses of the dredged material during the PED Phase. This process will include modeling turbidity plumes from the disposal of new work material. Based on the comprehensive preliminary analysis herein, this Draft 404(b)(1) Evaluation provides the necessary justification to proceed with a request for a CWA Section 401 WQC from ADEC.

_____ _____

DATE Michael B. Rouse
Chief, Environmental Resources

Figure 1. Homer Navigation Improvements Study Location Map

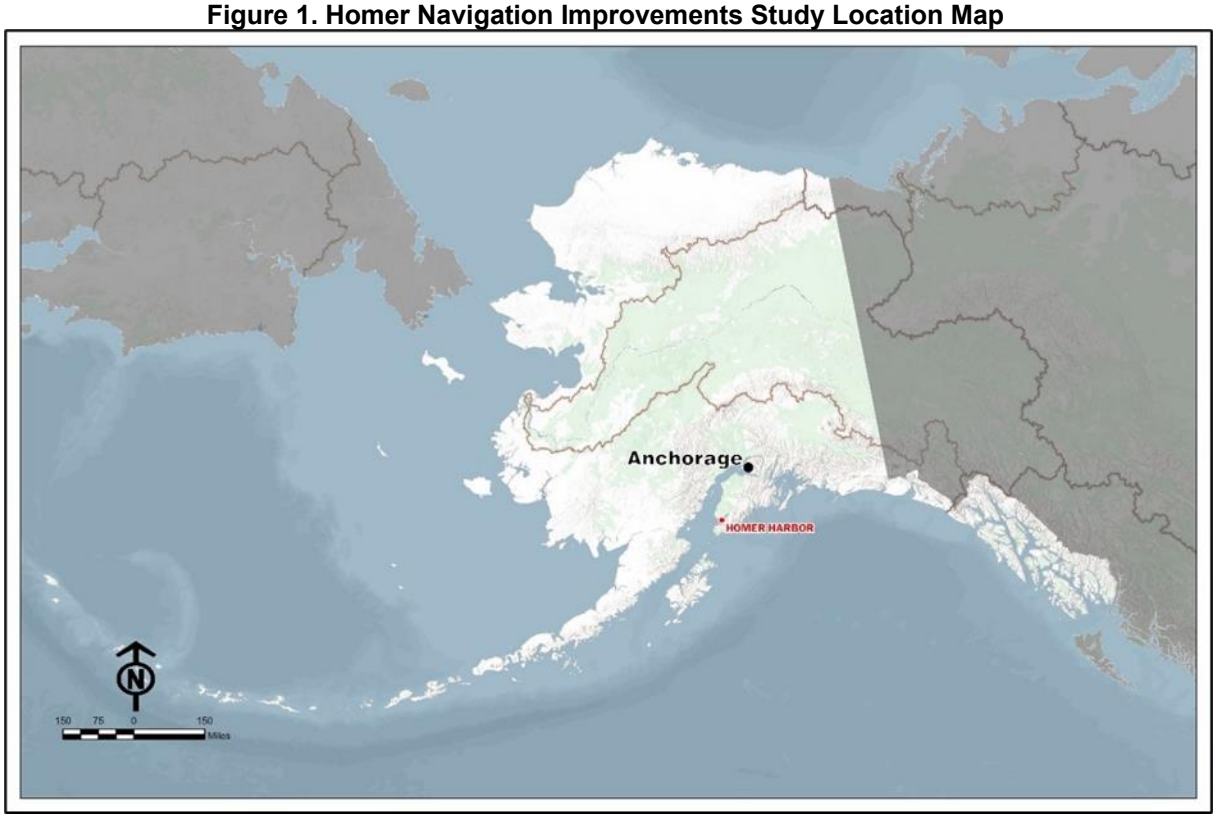

Figure 2. Homer Navigation Improvements Study Area Map

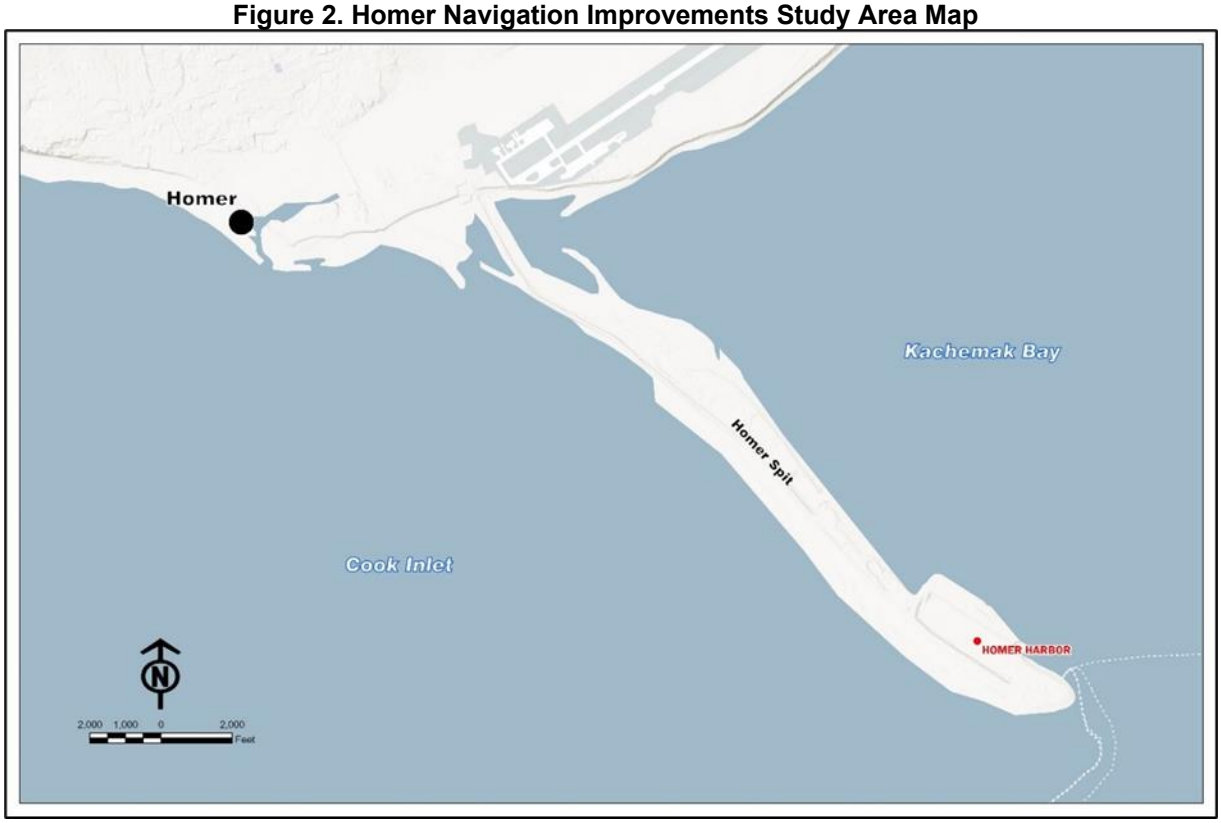

Figure 3. TSP / Alternative 2: Transient and Waitlisted Vessels Harbor

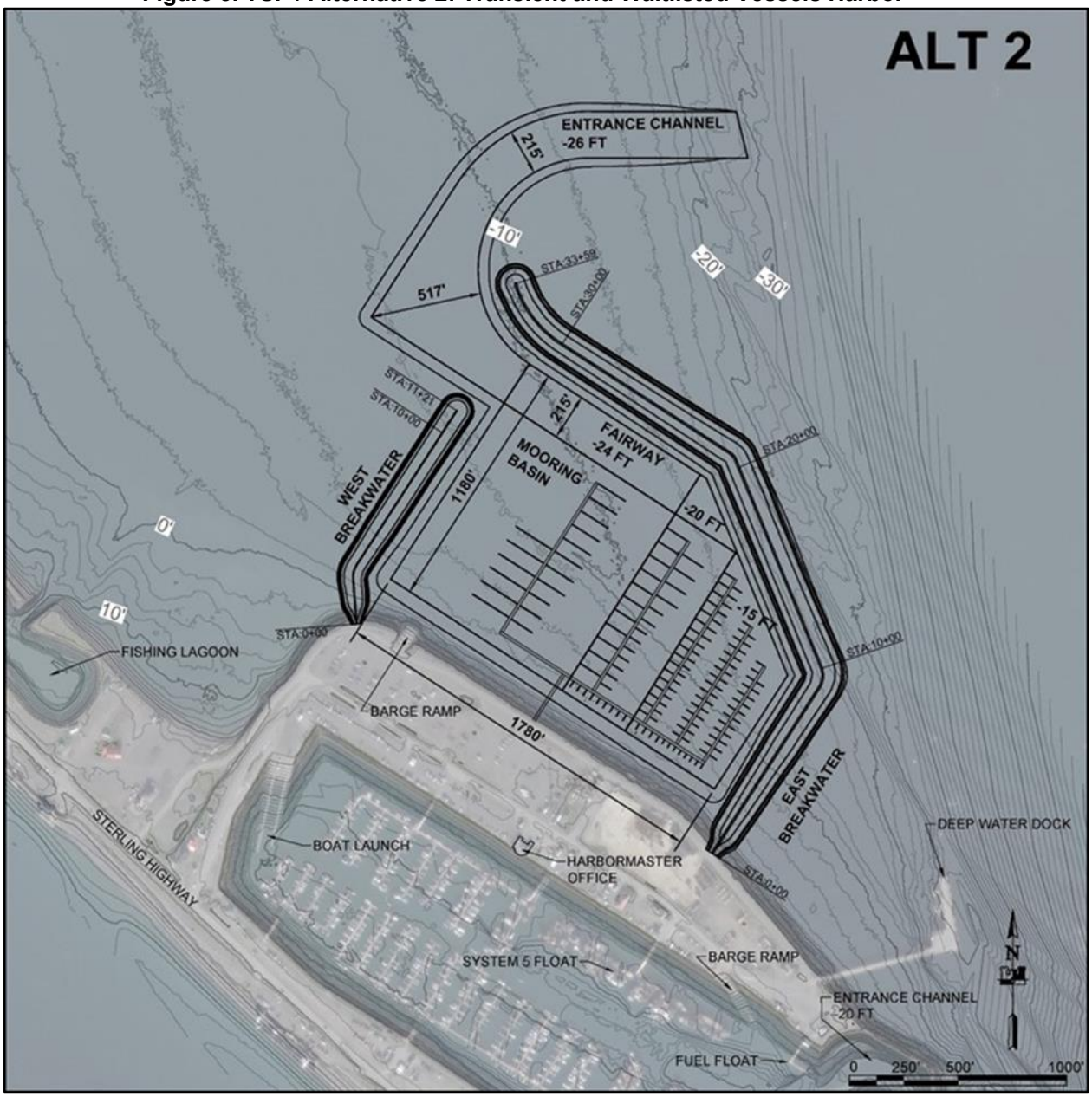

Figure 4. Tentatively Identified Dredged Material Disposal Site

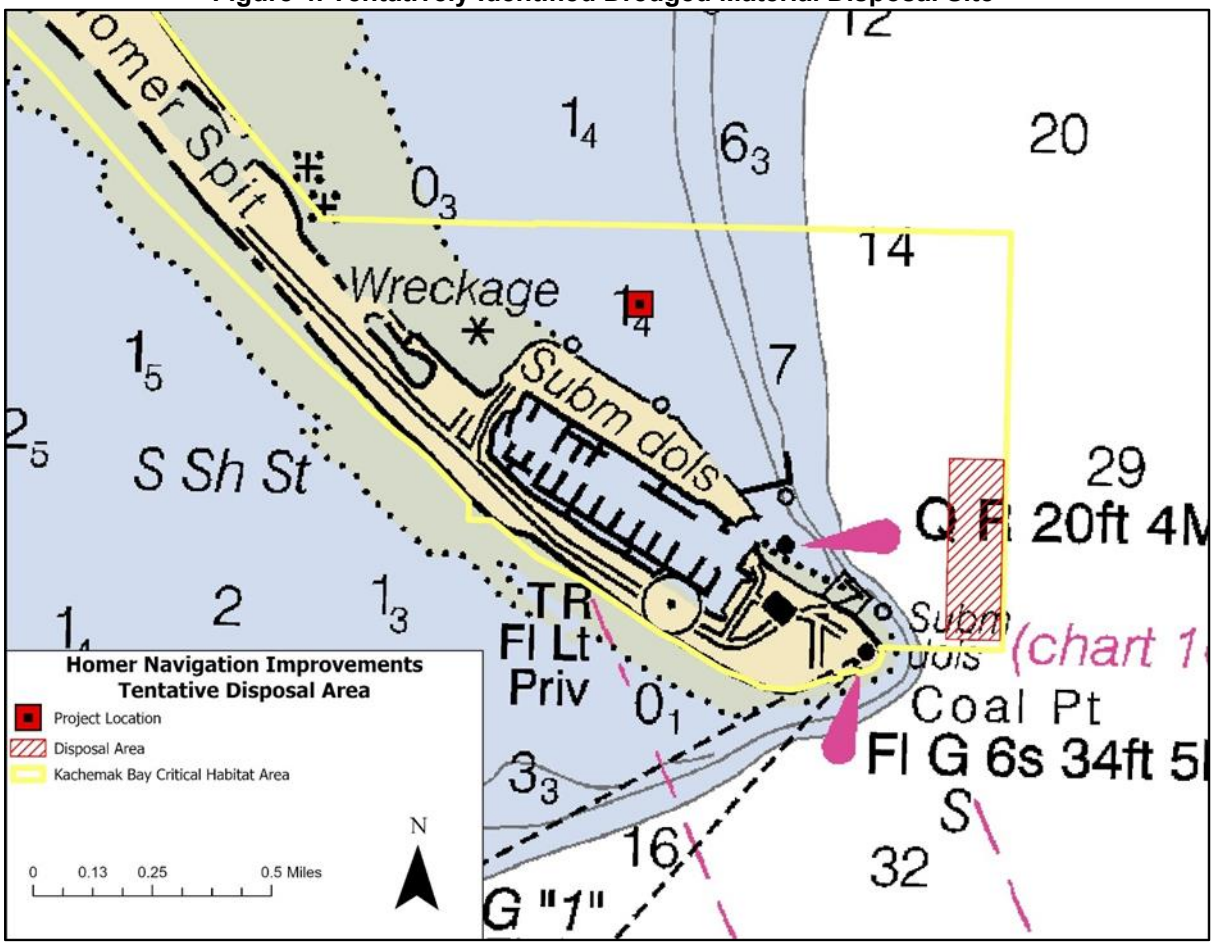

Table 5. TSP (Alternative 2) Detail Summary

Project Feature	Metric Value
Dredged Prism Area (Acres)	68
Basin Area (Acres)	37
New Work Dredging Volume (Cubic Yards)	1,311,800
Breakwater Volume (Cubic Yards)	500,400 (Consisting of 123,100 Armor Rock, 66,500 B Rock, and 310,800 C Rock)
Breakwater Length (Feet)	4,500
Vessels Accommodated (Number of Vessels)	304

Table 6. ADEC Contaminated Sites in Vicinity of the TSP

Hazard ID	Site Name	Constituent
2062	Homer Small Boat Harbor	Waste oil
27914	Petro 49 Homer Tanks 1 & 2	Fuel (UST)
22948	Homer Port and Harbor	Fuel and waste oil (UST)
123	Chevron Tank Farm - Homer	Heating oil
1839	Terminal Oil Sales	Fuel